

WHAT IS CLAIMED IS:

1. A motion controlled handheld device comprising:
    - a display having a viewable surface and operable to generate an image;
    - a gesture database maintaining a plurality of gestures, each gesture defined by5
    - a motion of the device with respect to a first position of the device, the gesture database comprising a first gesture set and a second gesture set;
    - a motion detection module operable to detect motion of the handheld device within three dimensions and to identify components of the motion in relation to the viewable surface; and10
    - a control module operable to:
      - track movement of the handheld device using the motion detection module;
      - compare the tracked movement against the gestures in the first gesture set to determine matching gestures;15
    - monitor user precision in indicating the matching gestures;
    - determine that the user precision exceeds a precision threshold;
    - prompt the user to enable the second gesture set; and
    - in response to an appropriate user command, enable the second gesture set such that the controller compares subsequent motion of the device against the gestures in the second gesture set.20
2. The motion controlled handheld device of Claim 1, wherein the second gesture set maintains less distinction between gestures as compared to the first gesture set.
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3. The motion controlled handheld device of Claim 1, wherein the second gesture set comprises more gestures than the first gesture set.

4. The motion controlled handheld device of Claim 1, wherein the control module is further operable to:

monitor matches between a user input gesture and a matching one of the gestures in the gesture database;

5 determine relatively consistent differences between the user input gesture and the matching gesture; and

modify the matching gesture in the gesture database based on the user input gesture.

10 5. The motion controlled handheld device of Claim 1, wherein the gesture database further defines each of the gestures using a sequence of accelerations.

6. The motion controlled handheld device of Claim 1, wherein the appropriate user command is a selected one of movement of the device matching to a 15 particular gesture and a non-motion user input.

7. The motion controlled handheld device of Claim 1, further comprising:  
a first accelerometer operable to detect acceleration along a first axis;  
a second accelerometer operable to detect acceleration along a second axis, the 20 second axis perpendicular to the first axis; and

a third accelerometer operable to detect acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis; and wherein:

the gesture database further defines each of the gestures using a sequence of 25 accelerations;

the motion detection module is further operable to detect motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

the control module is further operable to match the accelerations measured by 30 the motion detection module against gesture definitions in the gesture database to identify particular ones of the gestures.

8. A method for controlling a handheld device comprising:
  - generating an image on a viewable surface of the handheld device;
  - maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gesture database comprising a first gesture set and a second gesture set;
  - tracking movement of the handheld device in relation to the viewable surface;
  - comparing the tracked movement against the gestures in the first gesture set to determine matching gestures;
  - monitoring user precision in indicating the matching gestures;
  - 10 determining that the user precision exceeds a precision threshold;
  - prompting the user to enable the second gesture set; and
  - in response to an appropriate user command, enabling the second gesture set such that the controller compares subsequent motion of the device against the gestures in the second gesture set.
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9. The method of Claim 8, wherein the second gesture set maintains less distinction between gestures as compared to the first gesture set.
10. The method of Claim 8, wherein the second gesture set comprises more gestures than the first gesture set.
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11. The method of Claim 8, further comprising:
  - monitoring matches between a user input gesture and a matching one of the gestures in the gesture database;
  - 25 determining relatively consistent differences between the user input gesture and the matching gesture; and
  - modifying the matching gesture in the gesture database based on the user input gesture.
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12. The method of Claim 8, wherein the gesture database further defines each of the gestures using a sequence of accelerations.

13. The method of Claim 8, wherein the appropriate user command is a selected one of movement of the device matching to a particular gesture and a non-motion user input.

5           14. The method of Claim 8, wherein the gesture database further defines each of the gestures using a sequence of accelerations; the method further comprising:

- detecting acceleration along a first axis;
- detecting acceleration along a second axis, the second axis perpendicular to the first axis; and
- detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;
- detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and
- matching the accelerations against gesture definitions in the gesture database

10           15 to identify potential indicated ones of the gestures.

15. Logic for controlling a handheld device, the logic embodied in a computer readable medium and operable when executed to perform the steps of:
- generating an image on a viewable surface of the handheld device;
  - maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gesture database comprising a first gesture set and a second gesture set;
  - tracking movement of the handheld device in relation to the viewable surface;
  - comparing the tracked movement against the gestures in the first gesture set to determine matching gestures;
  - 10 monitoring user precision in indicating the matching gestures;
  - determining that the user precision exceeds a precision threshold;
  - prompting the user to enable the second gesture set; and
  - in response to an appropriate user command, enabling the second gesture set such that the controller compares subsequent motion of the device against the gestures
  - 15 in the second gesture set.

16. The logic of Claim 15, wherein the second gesture set maintains less distinction between gestures as compared to the first gesture set.
- 20 17. The logic of Claim 15, wherein the second gesture set comprises more gestures than the first gesture set.
18. The logic of Claim 15, further operable when executed to perform the steps of:
- 25 monitoring matches between a user input gesture and a matching one of the gestures in the gesture database;
  - determining relatively consistent differences between the user input gesture and the matching gesture; and
  - modifying the matching gesture in the gesture database based on the user input
  - 30 gesture.

19. The logic of Claim 15, wherein the gesture database further defines each of the gestures using a sequence of accelerations.

20. The logic of Claim 15, wherein the gesture database further defines 5 each of the gestures using a sequence of accelerations; the logic further operable when executed to perform the steps of:

detecting acceleration along a first axis;

detecting acceleration along a second axis, the second axis perpendicular to the first axis; and

10       detecting acceleration along a third axis, the third axis perpendicular to the first axis and perpendicular to the second axis;

detecting motion of the device using accelerations measured by the first accelerometer, the second accelerometer, and the third accelerometer; and

15       matching the accelerations against gesture definitions in the gesture database to identify potential indicated ones of the gestures.

21. A motion controlled handheld device comprising:
  - means for generating an image on a viewable surface of the handheld device;
  - means for maintaining a gesture database comprising a plurality of gestures, each gesture defined by a motion of the device with respect to a first position of the device, the gesture database comprising a first gesture set and a second gesture set;
  - means for tracking movement of the handheld device in relation to the viewable surface;
  - means for comparing the tracked movement against the gestures in the first gesture set to determine matching gestures;
- 10 means for monitoring user precision in indicating the matching gestures;
- means for determining that the user precision exceeds a precision threshold;
- means for prompting the user to enable the second gesture set; and
- means for in response to an appropriate user command, enabling the second gesture set such that the controller compares subsequent motion of the device against
- 15 the gestures in the second gesture set.